Claims

1. A method for fitting a tubular roll shell (2) of a roll (1) in a paper or board machine with slide bearings, said method comprising supporting the roll shell (2) on a stationary roll shaft (3) by means of hydrostatic slide bearing elements (4a, 4b, 4a', 4b', 5a, 5b, 5a', 5b') acting on the roll shell (2) in radially opposite directions at least in the direction of a primary plane or a plane co-directional with a primary loading (F) and a plane substantially lateral to the plane co-directional with the primary loading (F), and said slide bearing elements (4a, 4b, 4a', 4b', 5a, 5b, 5a', 5b') being loaded hydraulically by means of a pressure fluid, **characterized** in that the hydrostatic pressure of the lateral bearing elements (4a, 4b, 4a', 4b') acting in radially opposite directions on the roll shell (2) in a direction substantially lateral to a plane co-directional with the primary loading (F) is adjusted by means of a regulator (20) having feedback connection from the main bearing elements (5a, 5b, 5a', 5b') acting in the direction of a plane co-directional with the primary loading (F) to comply at a predetermined ratio with the maximum hydrostatic pressure of the main bearing elements (5a, 5b, 5a', 5b') acting on the roll shell (2).

2. A method as set forth in claim 1, **characterized** in that one lateral bearing element (4b, 4b') is supplied with a constant pressure (P_s) and the other lateral bearing element (4a, 4a') is supplied by way of the regulator (20) with a control pressure depending on the maximum pressure of the main bearing elements (5a, 5b, 5a', 5b').

3. A method as set forth in claim 1 or 2, **characterized** in that the lateral bearings (4a, 4a') have a control pressure which is about 0,5 to about 1, preferably about 0,5 to about 0,8 times the maximum pressure of the main bearing elements (5a, 5b, 5a', 5b').

4. A method as set forth in any of claims 1-3, **characterized** in that the regulator (20) used in the method comprises a mechanical hydraulic valve.

5. A method as set forth in claim 4, **characterized** in that the mechanical hydraulic valve (20) comprises: a cylindrical space (21) diametrically smaller at one end than at the other end; a valve stem (22) movable axially lengthwise in the cylindrical space (21); two slides (23, 24) fitted in the cylindrical space (21) in connection with the valve stem (22), the first (23) of said slides being mounted on a first end of the valve stem (22) in a diametrically smaller cylindrical space (21a), and the second (24) of said slides, which is provided with a spring (26), being mounted in connection with the valve stem (22) in a diametrically larger cylindrical space (21b, 21c), whereby a pressure fluid is delivered to at least one lateral bearing element (4a, 4a', 4b, 4b'); a regulator element (25), which is fitted in connection with a second end of the valve stem (22) as well as in connection with a feed line (P) for a hydraulic pressure fluid, and that the first slide (23) is subjected to a hydrostatic control pressure consistent with a hydrostatic pressure acting on hydrostatic slide bearing elements (5a, 5a', 5b, 5b') which work against the spring (26) and act on a roll shell (2) in a plane co-directional with a primary loading (F) for operating the valve stem (22) and the regulator element (25) in such a way that the hydraulic pressure fluid has access from the feed line (P) into the larger cylindrical space (21b, 21c) of the valve (20) in view of regulating a supply pressure delivered to at least one lateral bearing element (4a, 4a', 4b, 4b').

6. A method as set forth in any of claims 1-3, **characterized** in that the regulator (20) comprises an electrically controlled valve, which receives its control from either one of pressure detectors (52, 53), mounted in connection with the main bearing elements (5a, 5a', 5b, 5b') acting on the roll shell (2) in the direction of a plane co-directional with the loading (F), along a transit path (8, 8', 9', 10) established between the pressure detectors (52, 53) and the regulator (20).

7. A method as set forth in any of claims 1, 3, 4, 5 or 6, **characterized** in that the regulator (20) is fitted in the feed line (P) of one lateral bearing element (4a), said lateral bearing element (4a) being further provided with a control device (42), whereby the pressure is suppliable to another opposite lateral

bearing element (4b), the shell remaining laterally immobilized relative to the roll shaft (3).

8. A roll for applying the method of claim 1 for fitting a tubular roll shell (2) of a roll (1) in a paper or board machine, said roll shell (2) being supportable on a stationary roll shaft (3) by means of hydrostatic slide bearing elements (4a, 4b; 4a', 4b'; 5a, 5b; 5a', 5b') acting on the roll shell (2) in radially opposite directions at least in the direction of a first plane or a plane co-directional with a primary loading (F) and a plane substantially lateral to the plane co-directional with the primary loading (F), and said slide bearing elements (4a, 4b, 4a', 4b', 5a, 5b, 5a', 5b') being loadable hydraulically by means of a pressure fluid, **characterized** in that the hydrostatic pressure of the lateral bearing elements (4a, 4b; 4a', 4b') acting in radially opposite directions on the roll shell (2) in a direction substantially lateral to a plane co-directional with the primary loading (F) is adjustable by means of a regulator (20) having feedback connection from the main bearing elements (5a, 5b, 5a', 5b') acting in the direction of a plane co-directional with the primary loading (F) to comply at a predetermined ratio with the maximum hydrostatic pressure of the main bearing elements (5a, 5b, 5a', 5b') substantially acting on the roll shell (2).

9. A roll as set forth in claim 8, **characterized** in that one lateral bearing element (4b, 4b') is suppliable with a constant pressure and the other lateral bearing element (4a, 4a') is suppliable by way of a regulator (20) with a control pressure depending on the maximum pressure of the main bearing elements (5a, 5b, 5a', 5b').

10. A roll as set forth in claim 8 or 9, **characterized** in that the regulator (20) comprises a mechanical hydraulic valve.

11. A roll as set forth in claim 10, **characterized** in that the mechanical hydraulic valve (20) comprises: a cylindrical space (21) diametrically smaller at one end than at the other end; a valve stem (22) adapted to be movable axially lengthwise in the cylindrical space (21); two slides (23, 24) fitted in the cylindrical space (21) in connection with the valve stem (22), the first (23) of

said slides being mounted on a first end of the valve stem (22) in a diametrically smaller cylindrical space (21a), and the second (24) of said slides, which is provided with a spring (26), being mounted in connection with the valve stem (22) in a diametrically larger cylindrical space (21b, 21c), whereby a pressure fluid is suppliable to at least one lateral bearing element (4a, 4a', 4b, 4b'); a regulator element (25), which is fitted in connection with a second end of the valve stem (22) as well as in connection with a feed line (P) for a hydraulic pressure fluid, and that the first slide (23) is subjectable to a hydrostatic control pressure consistent with a hydrostatic pressure acting on hydrostatic slide bearing elements (5a, 5a', 5b, 5b') which work against the spring (26) and act on a roll shell (2) in a plane co-directional with a primary loading (F) for operating the valve stem (22) and the regulator element (25) in such a way that the hydraulic pressure fluid has access from the feed line (P) into the larger cylindrical space (21b, 21c) of the valve (20) in view of regulating a supply pressure delivered to at least one lateral bearing element (4a, 4a', 4b, 4b').

12. A roll as set forth in claim 8, **characterized** in that the regulator (20) comprises an electrically controlled valve, whose control is obtainable from either one of pressure detectors (52, 53), mounted in connection with the main bearing elements (5a, 5a', 5b, 5b') acting on the roll shell (2) in the direction of a plane co-directional with the loading (F), along a transit path (8, 8', 9', 10) established between the pressure detectors (52, 53) and the regulator (20).

13. A roll as set forth in any of claims 8, 10, 11 or 12, **characterized** in that the regulator (20) is connected with the feed line (P) of one lateral bearing element (4a), said lateral bearing element (4a) being further provided with a control device (42) for delivering the pressure to another opposite lateral bearing element (4b), the shell remaining laterally immobilized relative to the roll shaft (3).

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